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10/634,351	08/04/2003	Chon Yie Lin	2002B107A	8824
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EXXONMOBIL CHEMICAL COMPANY P O BOX 2149 BAYTOWN, TX 77522-2149			LEE, RIP A	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 12/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	Applicant(s)	
10/634,351	LIN ET AL.	
Examiner	Art Unit	
Rip A. Lee	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1)  Responsive to communication(s) filed on \_\_\_\_\_.
- 2a)  This action is **FINAL**.                      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4)  Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) 36-56 is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 1-35 is/are rejected.
- 7)  Claim(s) 2-4, 9, 14, 16, 20, 22-24, 29, 34 and 35 is/are objected to.
- 8)  Claim(s) 1-56 are subject to restriction and/or election requirement.

### Application Papers

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a)  All    b)  Some \*    c)  None of:
- Certified copies of the priority documents have been received.
  - Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01-12-2004.
- 4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5)  Notice of Informal Patent Application (PTO-152)
- 6)  Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-35, drawn to a polyolefin composition, classified in class 524, subclass 474.
  - II. Claims 36-56, drawn to a method of plasticizing a polyolefin, classified in class 524, subclass 570.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another materially different process. Instead of blending, the polyolefin composition may be heat impregnated with plasticizer, resulting in the formation of a plasticized polyolefin (see for example, U.S. Patent No. 4,467,010 to Shii *et al.*).
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

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4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Leandro Arechederra on November 30, 2004, a provisional election was made with traverse to prosecute the invention of group I, claims 1-35. Affirmation of this election must be made by applicant in replying to this Office action. Claims 36-56 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Objections***

8. Claims 2-4 and 22-24 are objected to because of the following informalities: The word “plasticizers” needs to be amended to “plasticizer” in order to be consistent with the recitation of the parent claim. Appropriate correction is required.

9. Claims 9 and 29 are objected to because of the following informalities: Specific gravity is unitless. Appropriate correction is required.

10. Claims 14, 16, 20, 34, and 35 are objected to because of the following informalities: When using the term “selected from” to delineate a grouping of elements, the conjunction “or” should be used between the last two elements in the group, unless the claim intends to include an embodiment containing all elements of that group. For instance, it is not clear whether claim 16 is drawn to a C<sub>3</sub>/C<sub>2</sub> copolymer or a C<sub>3</sub>/C<sub>2</sub>/C<sub>4+</sub> α-olefin terpolymer. Appropriate corrections are required.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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14. Claims 1, 2, 6, 7, 9-17, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,084,031 to Medsker *et al.*

Medsker *et al.* teaches compositions comprising 47.39 wt % of butyl rubber (plastomer), 2.37 wt % of polypropylene homopolymer, 9.48 wt % of propylene-ethylene copolymer, 9.48 wt % of a second polypropylene homopolymer, and 23.7 wt % of polybutene oil B (Table 1, entry Ib). In another example, the composition is comprised of 49.26 wt % of butyl rubber, 12.32 wt % of propylene-ethylene copolymer, 9.85 wt % of a second polypropylene homopolymer, and 24.63 wt % of polybutene oil C (Table 1, entry Id). Copolymers of propylene contain about 1 to about 20 wt % of ethylene or a C<sub>4</sub>-C<sub>20</sub>  $\alpha$ -olefin (col. 4, line 18). The specification also indicates that isotactic polypropylene may be used as the thermoplastic component (col. 4, line 21).

Polybutene oil B and C are commercially available as Exxon Parapol 950 and Exxon Parapol 450, respectively (see Table, col. 11). Relevant properties of Parapol 950 include: molecular weight of 950, pour point of -7 °C, viscosity of 230 cSt (100 °C), density of 7.41 lb/gal (0.888 g/cm<sup>3</sup>). Relevant properties for Parapol 450 include: molecular weight of 450, pour point of -34 °C, viscosity of 10.6 cSt (100 °C), density of 7.13 lb/gal (0.854 g/cm<sup>3</sup>).<sup>1</sup> According to Applicant's specification, suitable paraffins include polyalphaolefins (PAO's), of which polybutenes are a subset (see paragraphs [0055] and [0057]). A polybutene, *ipso facto*, is non-functionalized, and it does not contain aromatic materials or polyethylenes having a molecular weight of 500-10000.

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<sup>1</sup> Product information for Parapol 450 and Parapol 950 has been included for Applicant's convenience. The same printout may be obtained from the website, <http://www.infochems.com/index>.

The combination of 2.37 wt % of polypropylene homopolymer, 9.48 wt % of propylene-ethylene copolymer, and 9.48 wt % of a second polypropylene homopolymer corresponds to a composition comprising 56 wt % of propylene homopolymer and 44 wt % of propylene copolymer, which contains up to 20 wt % comonomer (*supra*). Note that this satisfies the constitutional requirements set forth in present claim 17, and thus, the composition also qualifies as “propylene impact copolymer.”

15. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Medsker *et al.*

Regarding claim 5, Medsker *et al.* does not teach the decrease in  $T_g$  of polyolefin as a function of the amount of plasticizer incorporated therein, and it is silent with respect to  $T_m$  of the polyolefin. However, a reasonable basis exists to believe that the plasticized composition described in the prior art will exhibit the claimed properties, especially in light of the fact that composition of the prior art are essentially the same as the composition of the present claims.<sup>2</sup> As such, it would have been obvious to one having ordinary skill in the art that the composition described in the prior art also exhibits the claimed property. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

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<sup>2</sup> Products of identical chemical composition can not have mutually exclusive properties. A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ 1655, 1658 (Fed. Cir. 1990).



Regarding claim 8, the reference is silent with respect to the dielectric constant of the polybutene oils. Again, one having ordinary skill in the art would have found it obvious that the plasticizers of the prior art would exhibit the claimed physical property in light of the fact that the properties, pour point, viscosity, molecular weight, specific gravity, all lie within the claimed ranges. This notion is especially obvious in view of the fact that Applicants specification also prescribes use of Parapol 450 and Parapol 950 (see paragraph [0060]). Since a reasonable basis exists to believe that the prior art material also exhibits the claimed property, and since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

16. Claims 21, 22, and 25-35 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Medsker *et al.*

The discussion of the disclosures of Medsker *et al.* from paragraphs 14 and 15 of this office action is incorporated here by reference. The composition described in present claims 21, 22, 26, 27, and 29-35 is taught in the patent. However, the reference does not disclose the properties recited in present claims 21, 25, and 28. Nonetheless, it would have been obvious to one having ordinary skill in the art that the materials of Medsker *et al.* will exhibit the same properties, especially in view of the fact that the composition of the prior art and that of the present claims are essentially the same. Since the PTO does not conduct experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

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17. Claims 1, 2, 6, 9-12, 14, 16, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,663,220 to Wisneski *et al.*

Wisneski *et al.* teaches a composition comprised of 60 wt % of Kraton G1652 and 40 wt % of Indopol L1-4 plasticizer (Table XIII). Kraton G1652 is a polyolefin comprised of an SE/BS (styrene-ethylene/butylene-styrene) block copolymer (col. 41, lines 5-38), and Indopol L14 is a polybutene having a pour point of -51 °C (Table XI). Other relevant data from Table XI include: average molecular weight of 320, specific gravity of 0.8373, density of 6.97 lb/gal (0.835 g/cm<sup>3</sup>). An average molecular weight of 320 would correspond to approximately 6 units derived from butene, and accordingly, about 24 carbon atoms; that is, the polybutene is characterized as a C<sub>24</sub> paraffin. The end use of the product of the invention is a fibrous nonwoven web (*i.e.* nonwoven fabric; see abstract).

18. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wisneski *et al.*

Wisneski *et al.* does not teach the decrease in  $T_g$  of polyolefin as a function of the amount of plasticizer incorporated therein, and it is silent with respect to  $T_m$  of the polyolefin. However, a reasonable basis exists to believe that the plasticized composition described in the prior art will exhibit the claimed properties, especially in light of the fact that composition of the prior art are essentially the same as the composition of the present claims. As such, it would have been obvious to one having ordinary skill in the art that the prior art composition also exhibits the claimed property. Again, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

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19. Claims 21, 22, 25-27, 29-32, 34, and 35 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wisneski *et al.*

As discussed previously, the composition of the present claims and that of the prior art are essentially the same, and as a result, the composition of present claims 21, 22, 26, 27, 29-32, 34, and 35 is anticipated by the prior art. Wisneski *et al.* is silent with respect to the properties recited in present claims 21 and 25, however, one having ordinary skill in the art would have found it obvious that the materials described therein will exhibit the same properties. Since the PTO does not conduct experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

20. Claims 1, 2, 7, 9-12, 14, and 16-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,001,455 to Nishio *et al.*

Nishio *et al.* discloses a composition comprised of 100 pw of a polyolefin and 32 wt % of a paraffin oil having an average molecular weight of 746 (746 ÷ 14 corresponds approximately to C<sub>50</sub>) and containing no cyclic components, commercially available as Diana Process Oil PW-380 (see Table 1, Example 2 and glossary of components, col. 11-13). Diana Process Oil PW-380 exhibits a pour point of -15 °C, a viscosity of 30.10 cSt (100 °C), specific gravity of 0.8769.<sup>3</sup>

The polyolefin is comprised of 36 wt % of polypropylene homopolymer, 36 wt % of a propylene-ethylene copolymer rubber having a propylene content of 70 wt %, and includes 28 wt

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<sup>3</sup> For supporting information, see U.S. Patent No. 4,703,078 to Maehara *et al.*, col. 6, lines 44-47; also see paragraph 25 of this office action, *infra*.

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% of an EPDM rubber. The combination of 36 wt % of polypropylene homopolymer and 36 wt % of propylene-ethylene copolymer corresponds to a composition comprising 50 wt % of propylene homopolymer and 50 wt % of propylene copolymer, which contains 30 wt % comonomer. Note that this satisfies the constitutional requirements set forth in present claim 17, and thus, the composition also qualifies as "propylene impact copolymer." The EPDM rubber is thermoplastic and elastomeric due to the diene component. As such, the material qualifies as a plastomer. Inventive compositions were extruded as sheets (col. 14, line 53).

21. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio *et al.*

Nishio *et al.* does not teach the decrease in glass transition temperature of polyolefin as a function of the amount of plasticizer incorporated therein, and it is silent with respect to the melting temperature of the polyolefin. However, a reasonable basis exists to believe that the plasticized composition described in the prior art will exhibit the claimed properties, especially in light of the fact that composition of the prior art are essentially the same as the composition of the present claims. As such, it would have been obvious to one having ordinary skill in the art that the composition described in the prior art also exhibits the claimed property. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

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22. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,001,455 to Nishio *et al.* in view of U.S. Patent No. 4,592,851 to Stadtmiller *et al.*

The discussion of the disclosures of the prior art of Nishio *et al.* from paragraph 20 of this office action is incorporated here by reference. The reference does not disclose the structure of the paraffins contained in the oil. Stadtmiller *et al.* teaches that, consistent with the term paraffin,<sup>4</sup> paraffinic oils are comprised of straight or branched paraffinic hydrocarbons (col. 2, line 26-28). Since the oil disclosed in Nishio *et al.* contains paraffins having a carbon content within range set forth in the claims, it would have been obvious to one having ordinary skill in the art that the paraffin oil disclosed in Nishio *et al.* also contains *n*-paraffins (straight paraffin hydrocarbons) and isoparaffins (branched paraffin hydrocarbons) within the claimed ranges.

23. Claims 21, 22, 25-27, 29-32, 34, and 35 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nishio *et al.*

The discussion in paragraph 20 of this office action, the composition described in present claims 21, 22, 26, 27, 29-32, 34, and 35 is taught in Nishio *et al.* However, the reference does not disclose the properties recited in present claims 21 and 25. Nonetheless, it would have been obvious to one having ordinary skill in the that the materials of Nishio *et al.* will exhibit the same properties, especially in light of the fact that the composition of the prior art and that of the present claims are essentially the same. Since the PTO does not conduct experiments, the burden

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<sup>4</sup> *Hawley's Condensed Chemical Dictionary, 14<sup>th</sup> Ed.* defines paraffin as a class of aliphatic hydrocarbons characterized by straight or branched carbon chains. Paraffin oil is distilled from paraffin distillate consisting of a mixture of wax and oil. Waxes typically have a high molecular weight, *i.e.*, C<sub>36</sub>H<sub>74</sub>; see page 835.

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is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

24. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio *et al.*, as applied to claims 21, 22, 25-27, 29-32, 34, and 35 above, and further in view of Stadtmiller *et al.*

The discussion of the disclosures of the prior art of Nishio *et al.* from paragraphs 14 and 24 of this office action is incorporated here by reference. The reference does not disclose the structure of the paraffins contained in the oil. Stadtmiller *et al.* teaches that, consistent with the term paraffin,<sup>3</sup> paraffinic oils are comprised of straight or branched paraffinic hydrocarbons (col. 2, line 26-28). Since the oil disclosed in Nishio *et al.* contains paraffins having a carbon content within range set forth in the claims, it would have been obvious to one having ordinary skill in the art that the paraffin oil disclosed in Nishio *et al.* also contains *n*-paraffins (straight paraffin hydrocarbons) and isoparaffins (branched paraffin hydrocarbons) within the claimed ranges.

25. Claims 1, 2, 7, 9-12, 14, 16, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,703,078 to Maehara *et al.*

Maehara *et al.* discloses a polyolefin-based resin composition comprised of 100 pw of a polyolefin-based resin selected from ethylene and/or propylene (co)polymers, 20-300 pw of a wax, and 20-300 pw of an oily fluid having a pour point at or below 25 °C (claim 1). Representative oils are paraffinic oils such as Diana PW-380 process oil (pour point of -15 °C, viscosity of 30.10 cSt (100 °C), specific gravity of 0.8769) and Idemitsu Polybutene 15R (pour

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point of  $-15\text{ }^{\circ}\text{C}$ , viscosity of 38 cSt ( $100\text{ }^{\circ}\text{C}$ ), specific gravity of 0.870,  $M_w = 570$ ); see col. 6, lines 44-47 and 56-60).

26. The prior art made of record but not relied upon is considered pertinent to the Applicant's disclosure: Gedeon *et al.*, abstract from presentation at *TPE's 2000*, Philadelphia, PA, September 27-28, 1999; also available at <http://www.chevron.com/prodserv/paralux/articles.htm>.

The presentation by Gedeon *et al.* teaches use of clean paraffinic processing oils for improving thermoplastic polyolefin properties. Thermoplastic mixtures comprised of Kraton G16561 and Polypropylene 12 homopolymer or EPDM Vistalon 3708 and Polypropylene 12 homopolymer were blended with a series of commercially available paraffinic oils. The compositions contain more than 40 wt % of paraffin oil, and this amount lies beyond the range set forth in the present claims.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

A handwritten signature in black ink, appearing to read 'Rip A. Lee', written in a cursive style.

Rip A. Lee

November 30, 2004